Advantech AE Technical Share Document

Date	2023/9/27	SR#	1-4105884893
Category	□FAQ ■SOP	Related OS	N/A
Abstract	How to receive LoRaWAN end node data payload and parse data on TTNv3?		
Keyword	WISE, Data Log, Parser, JavaScript, LoRaWAN, The Things Network		
Related Product	WISE-2410, WISE-4610		

■ Problem Description:

This document explains how to receive LoRaWAN WISE-2410 vibration data payload and parse it into meaningful key-value on TTN (The Things Network).

Figure. Topology of this document application.

■ Brief Solution - Step by Step:

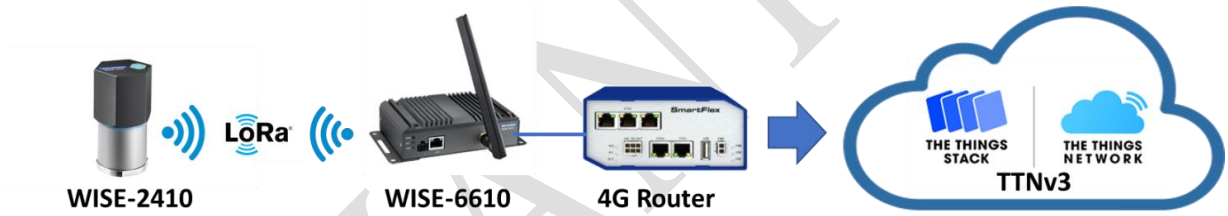
Note: Please make sure all your LoRaWAN node, LoRaWAN gateway, TTN network server IP, and handler on TTN are matching the same frequency. In this example, we use the Frequency AS923 band LoRaWAN gateway and node for demonstration.

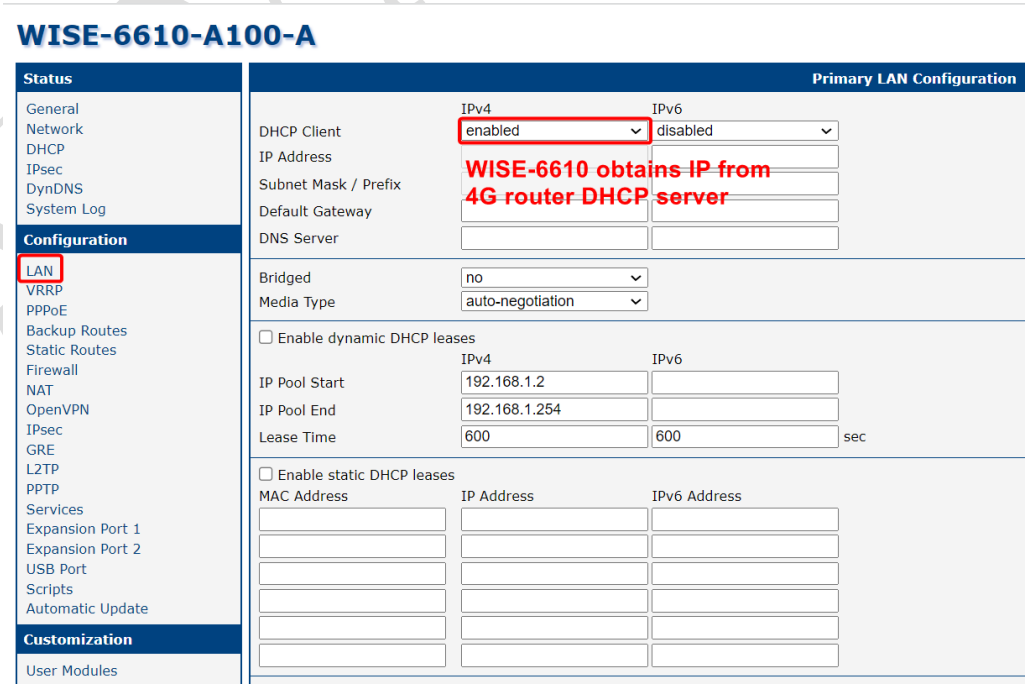
Preparation:

- WISE-2410-NA
- WISE-6610-Axxx
- A TTN (The Things Network) account.

Please follow the FAQ to connect WISE-2410 with WISE-6610 and set node to OTAA mode.
How to connect WISE-2410 with WISE-6610?

Step 1. Connect WISE-6610 gateway with public Network.
In this case, WISE-2410 transmits data to WISE-6610 through Lora, and connects to the 4G router through Ethernet, so that the data reaches TTN through the Internet.

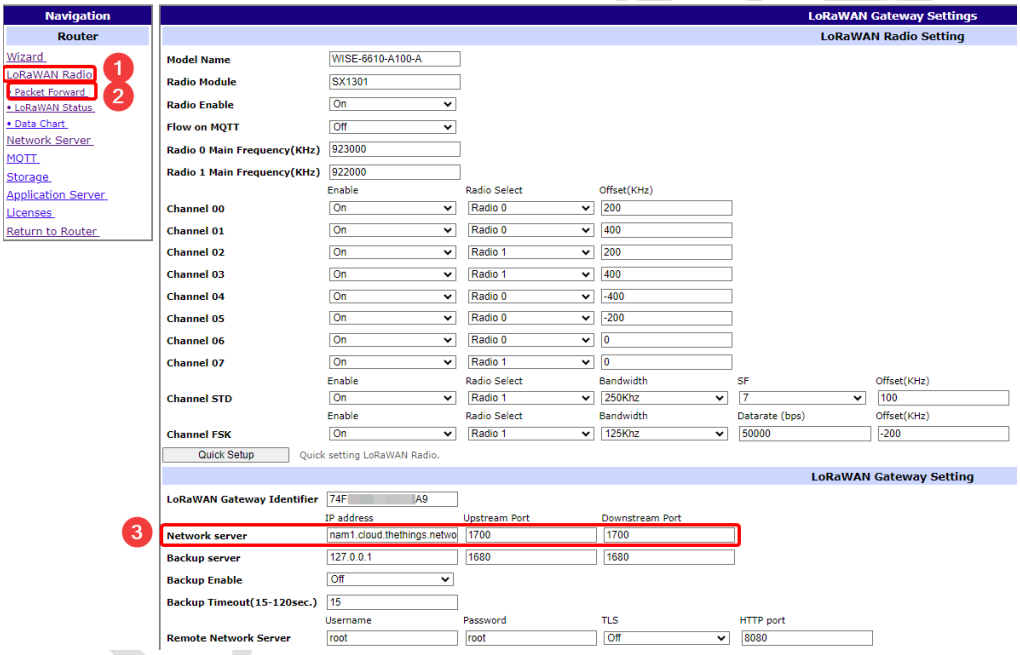




Step 2. Get the TTN server domain names. The TTN server list is as follows:

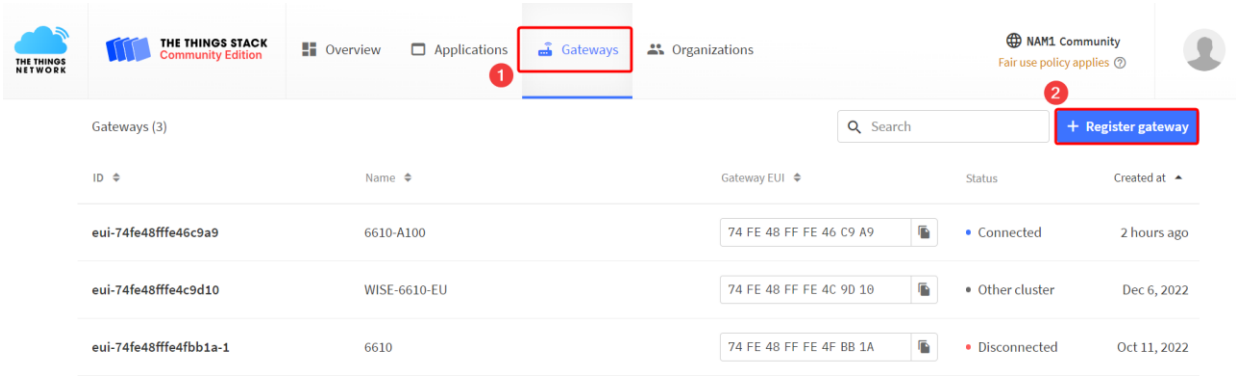
Region	Router address
Europe 1 (Ireland)	eu1.cloud.thethings.network
Europe 2 (UK)	eu2.cloud.thethings.network
North America 1 (California, USA)	nam1.cloud.thethings.network
Australia 1 (Sydney, Australia)	au1.cloud.thethings.network

Set the router address as the Network Server on the WISE-6610 LoRaWAN gateway setting page. The **Upstream** and **Downstream ports** are set to **1700**. In this case, we use the North America 1 region router address "**nam1.cloud.thethings.network**" and set the port to **1700**.

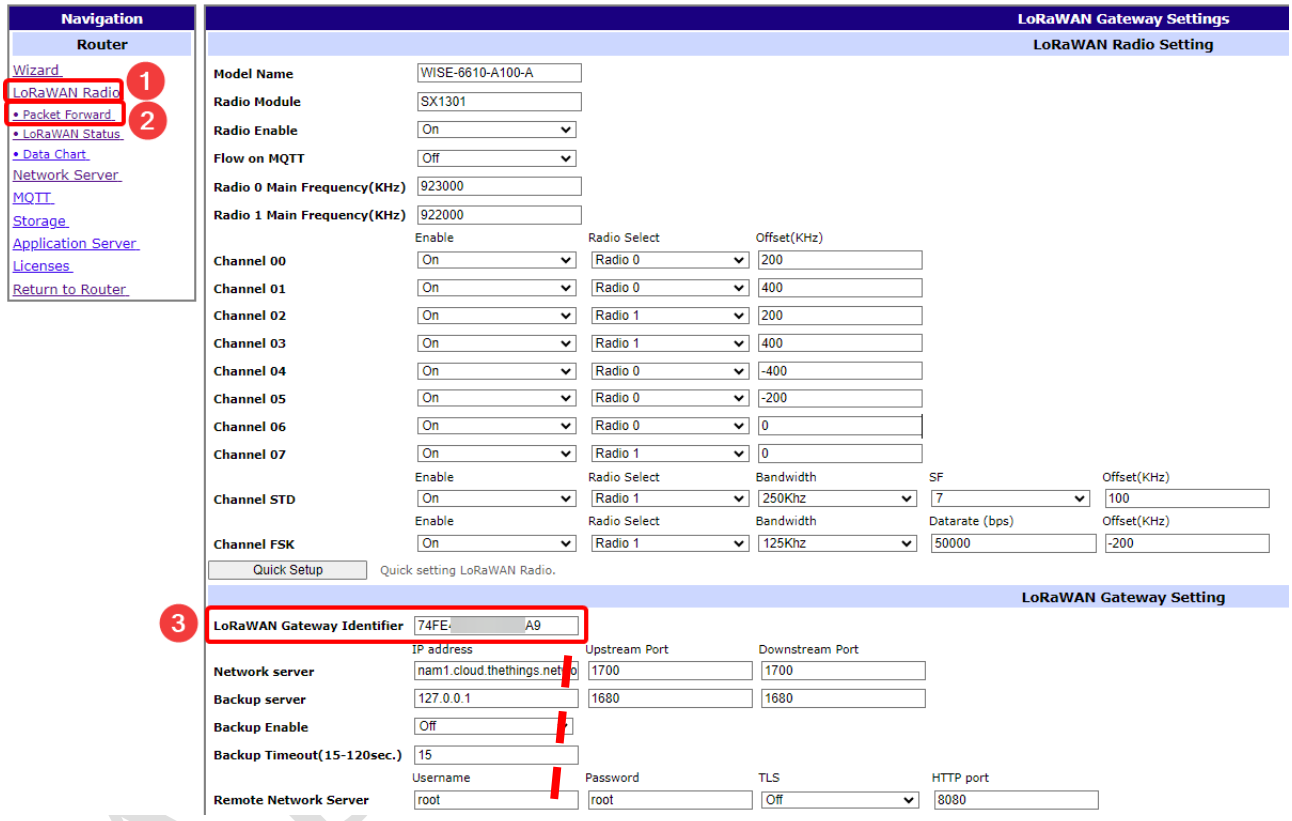


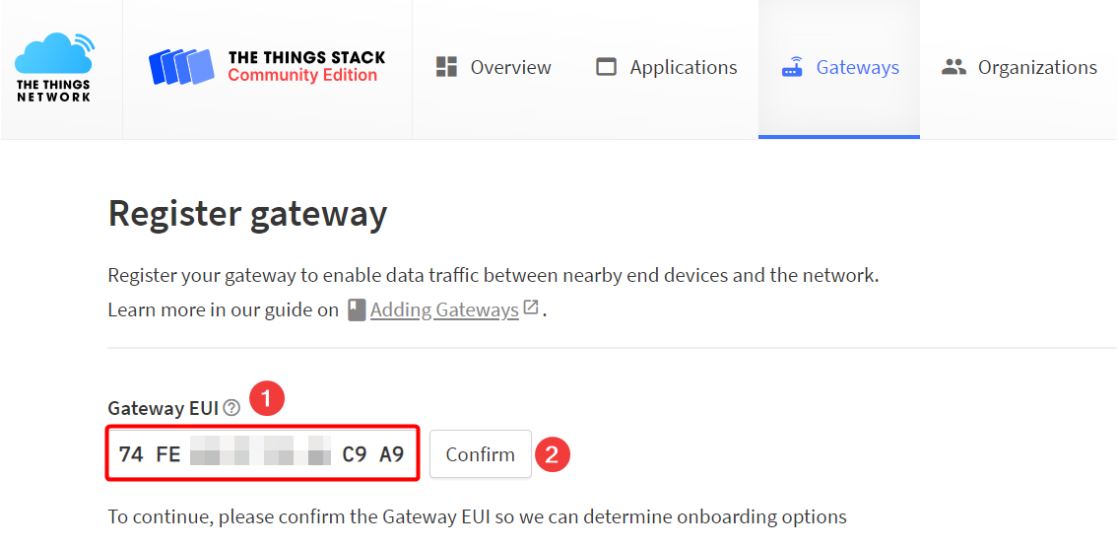
Step 3. Register a LoRaWAN Gateway.

Launch your TTN account and enter the "**Gateways**" settings page, then click "**Register gateway**".

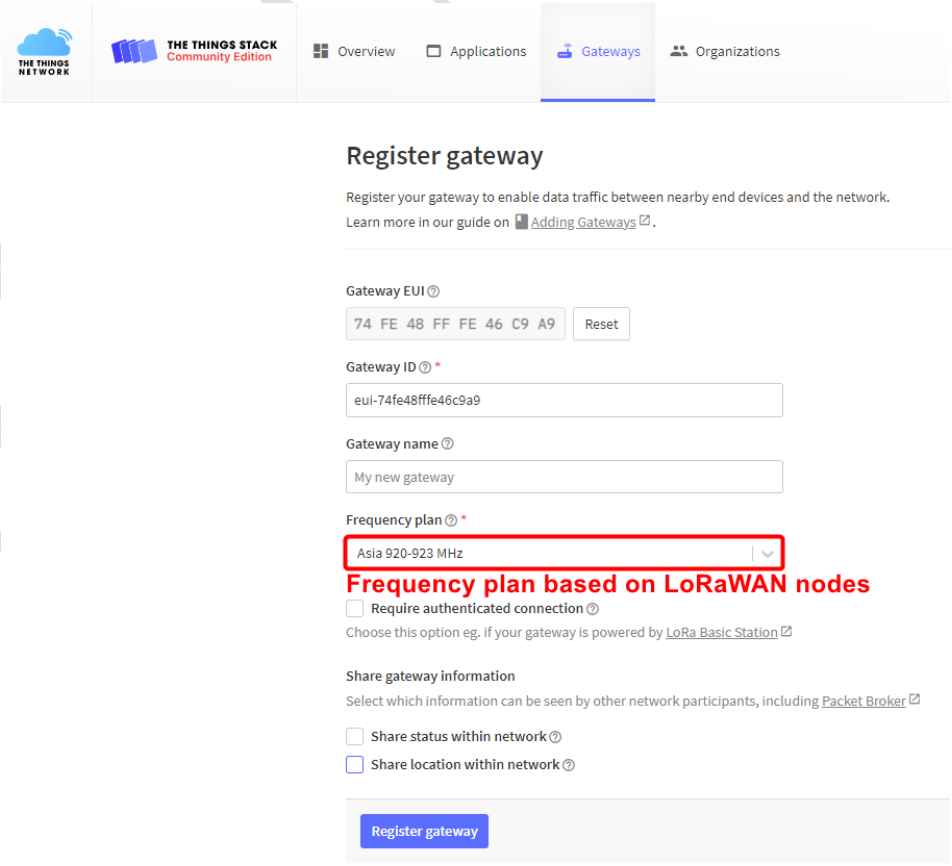


Enter the **LoRaWAN Gateway Identifier** of WISE-6610 in "**Gateway EUI**" of the "**Register gateway**" page.

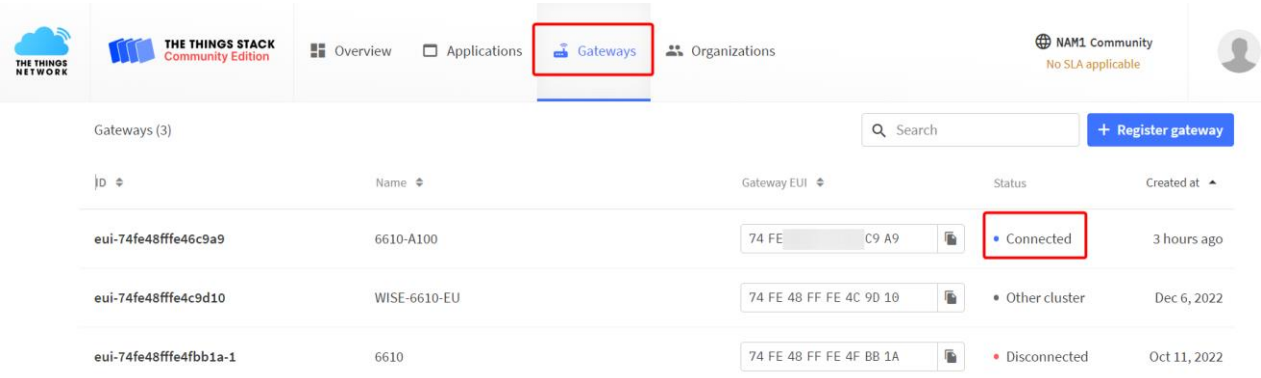




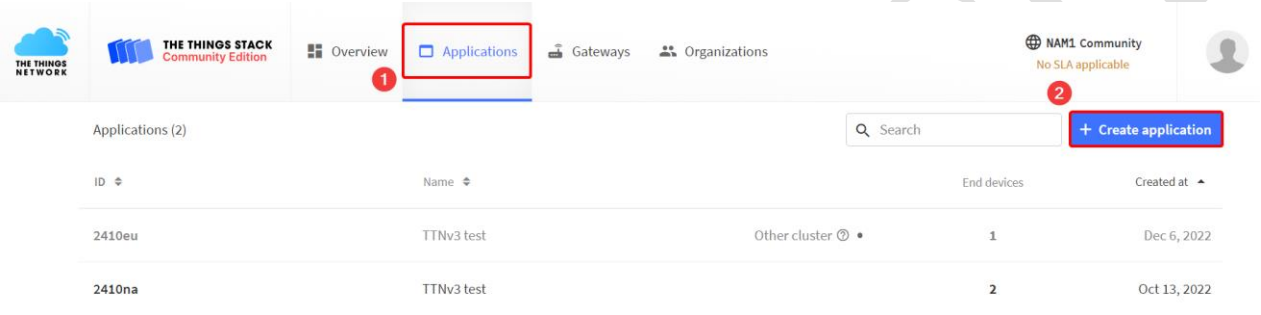
After clicking "**Confirm**", select the corresponding frequency according to the LoRaWAN node.



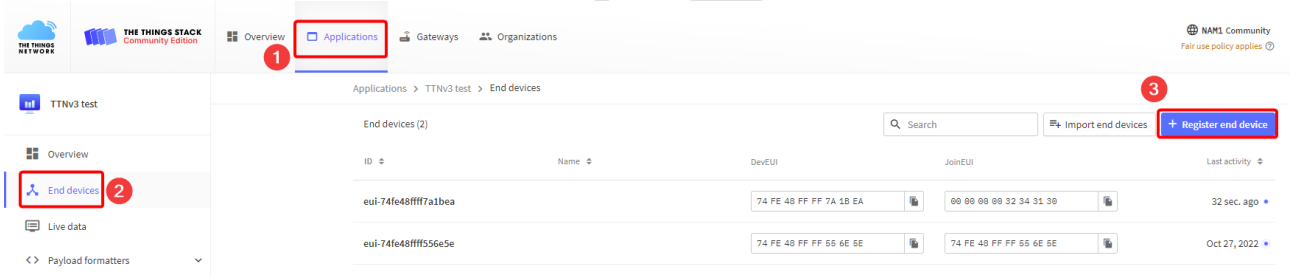
Step 4. Check Gateway status is **connected**



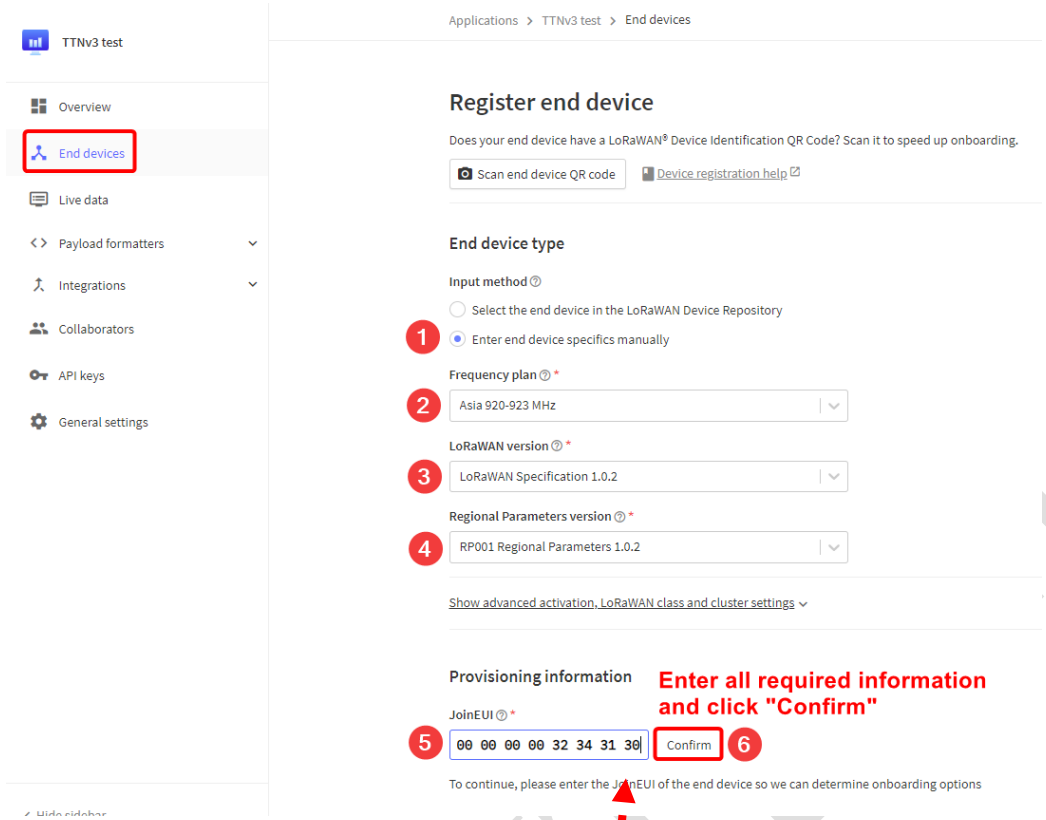
Step 5. Add an application.

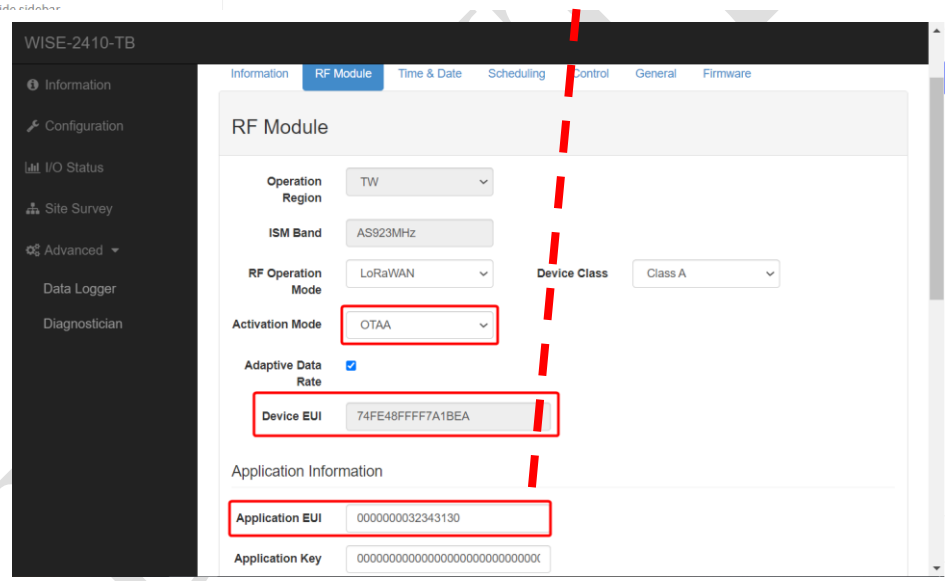


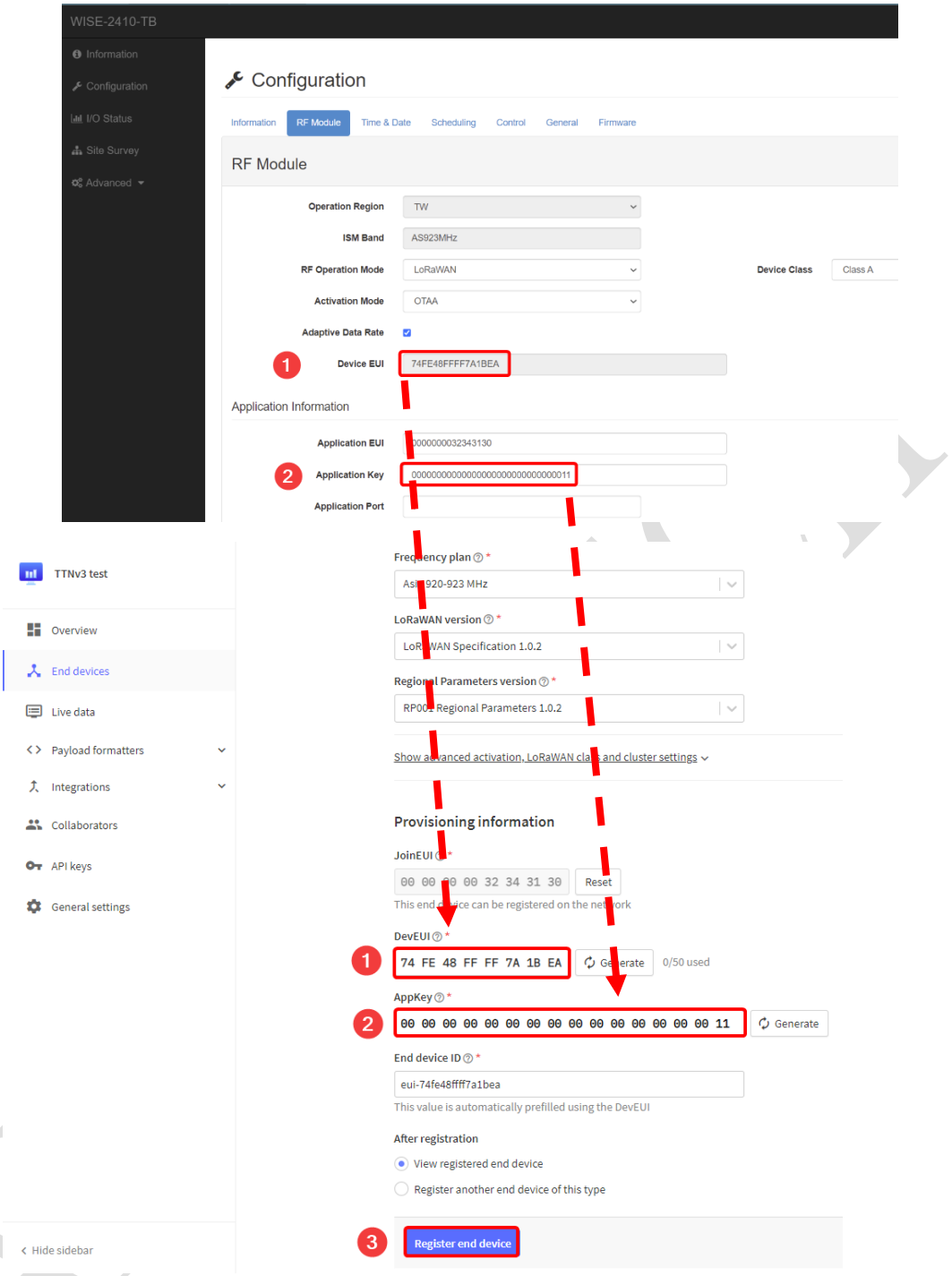
Step 6. Add end device in the Applications page



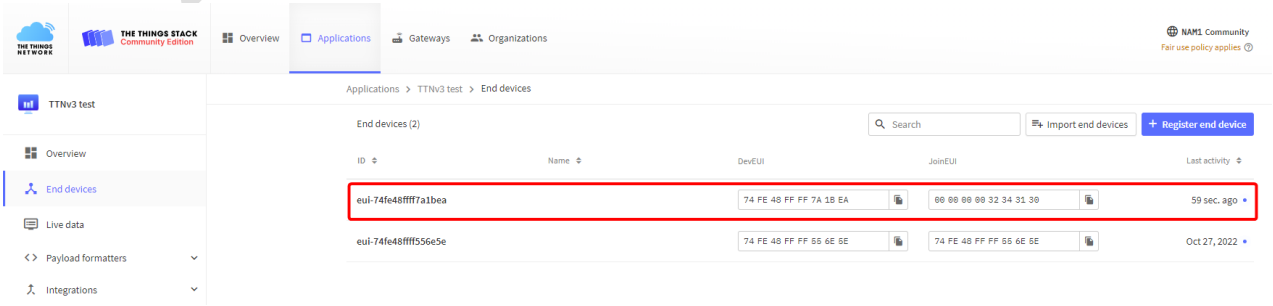
Enter the required information for the LoRaWAN node.


TTNv3 test
Overview
End devices
Live data
Payload formatters
Integrations
Collaborators
API keys
General settings
Applications > TTNv3 test > End devices
Register end device
Does your end device have a LoRaWAN® Device Identification QR Code? Scan it to speed up onboarding.
Scan end device QR code
Device registration help
End device type
Input method
Select the end device in the LoRaWAN Device Repository
1
Enter end device specifics manually
Frequency plan *
2
Asia 920-923 MHz
LoRaWAN version *
3
LoRaWAN Specification 1.0.2
Regional Parameters version *
4
RP001 Regional Parameters 1.0.2
Show advanced activation, LoRaWAN class and cluster settings
Provisioning information
Enter all required information and click "Confirm"
JoinEUI *
5
00 00 00 00 32 34 31 30
Confirm
6
To continue, please enter the JoinEUI of the end device so we can determine onboarding options

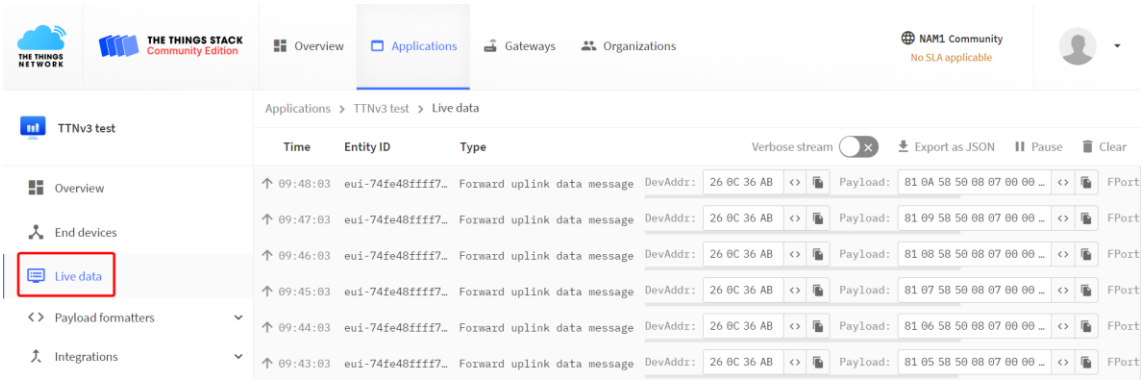

WISE-2410-TB
Information
Configuration
I/O Status
Site Survey
Advanced
Data Logger
Diagnostician
Information
RF Module
Time & Date
Scheduling
Control
General
Firmware
RF Module
Operation Region
TW
ISM Band
AS923MHz
RF Operation Mode
LoRaWAN
Device Class
Class A
Activation Mode
OTAA
Adaptive Data Rate
Device EUI
74FE48FFFF7A1BEA
Application Information
Application EUI
0000000032343130
Application Key



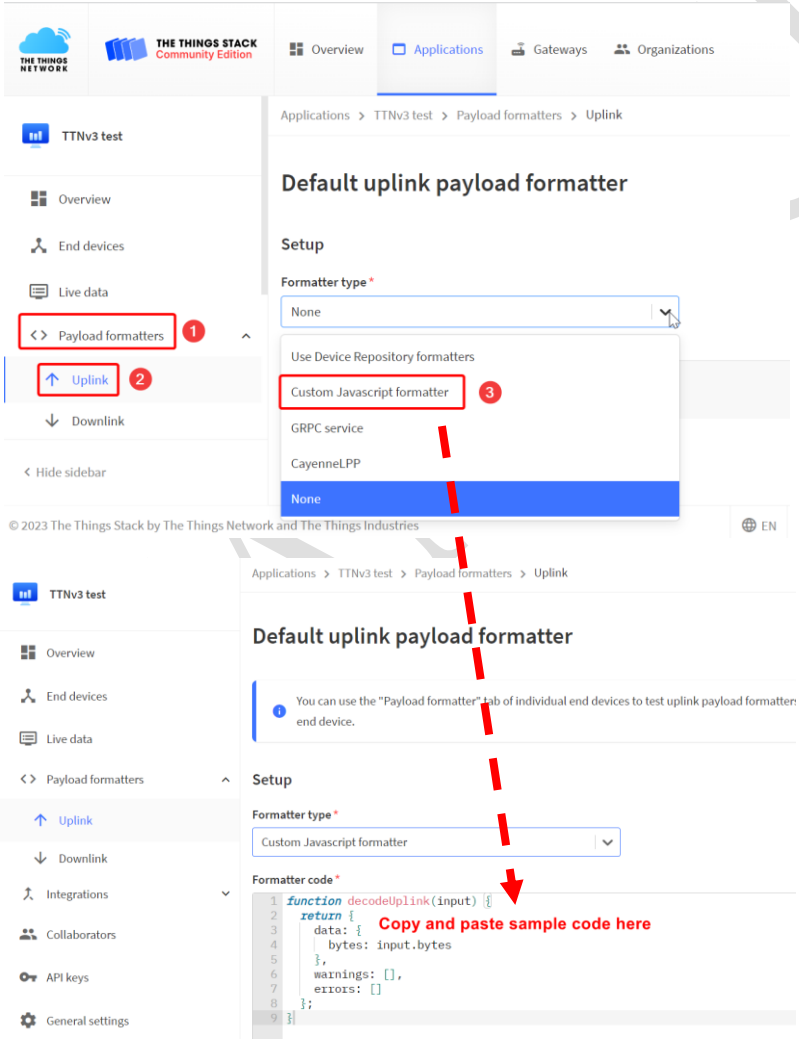
Step 7. Check End device status is **connected**



Step 8. Check the "**Real-time Data**" page to receive data from end nodes.



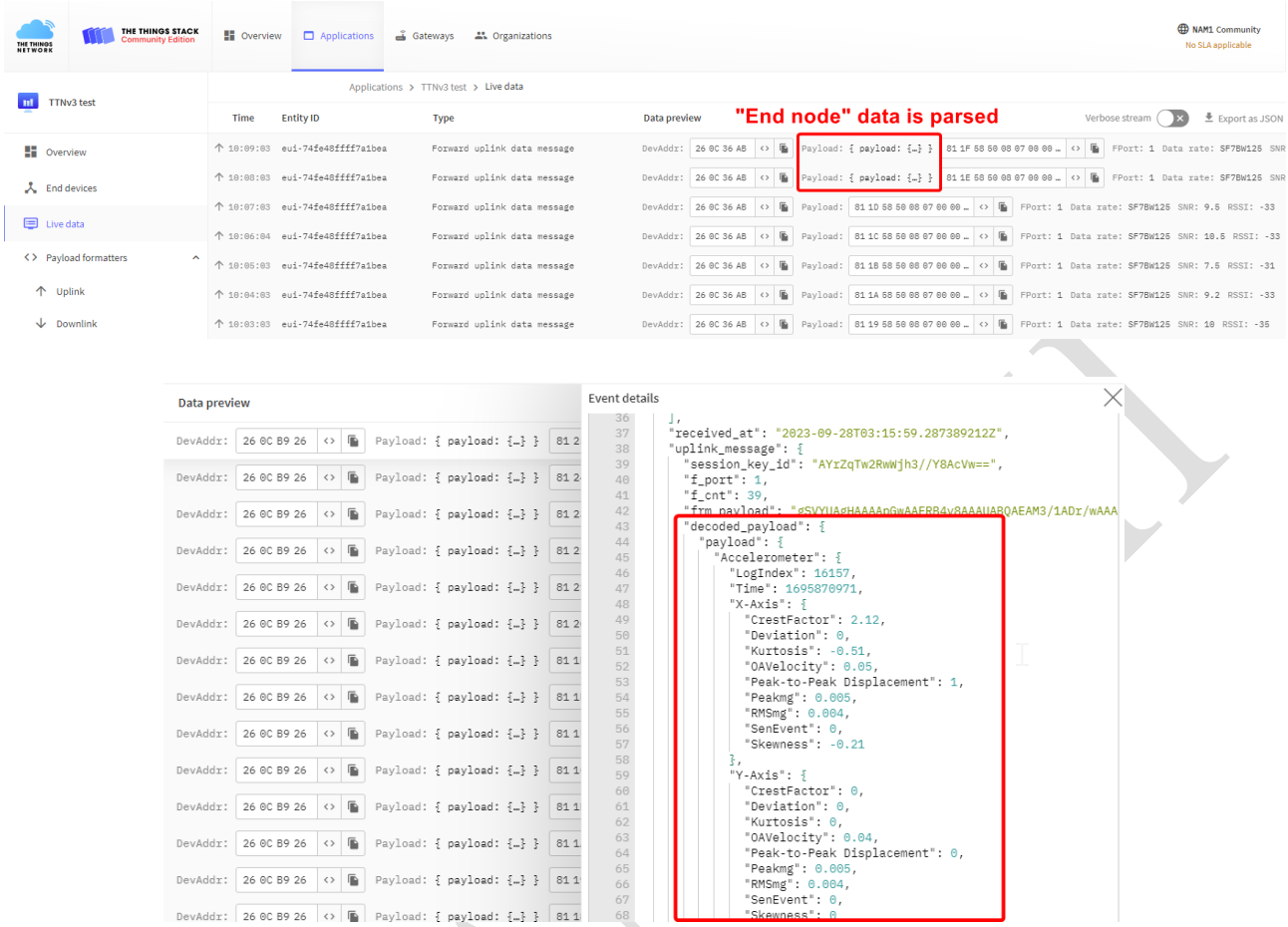
Step 9. Set the payload decoder.



Download the sample code from the support portal and copy and paste it.

https://www.advantech.com/en/support/details/utility?id=1-1UAZL7H

Step 10. Check the end done live data is parsed.



Notes: Please use **DR5-SF7/125KHz** to set the end node "**Data Rate**", otherwise you will receive a "**fragmentation message, please use higher transmission data rate on your device**" error message.